REMARKS

Claims 2 and 10-19 are currently pending in the present application. Claims 1 and 3-9 have been cancelled by the present amendment.

The rejection of: (1) claims 1 and 3-9 under 35 U.S.C. § 102(b) as being anticipated over Lupia (WO 00/58975) is obviated by amendment with respect to the cancellation of said claims; and (2) claims 2 and 10-19 under 35 U.S.C. § 103(a) as being obvious over Lupia is respectfully traversed.

As discussed in the present specification, a polyolefin-based resin molded article positioned in contact with or near a vinyl chloride-based resin molded article undergoes accelerated oxidative deterioration due to the presence of plasticizers and/or hydrogen chloride liberated from the vinyl chloride-based resin (See e.g., page 1, lines 22-25, page 2, lines 17-25, page 9, lines 20-25). Applicant has discovered that by incorporating a phenol-based antioxidant containing no aliphatic ester group and/or a sulfur-based antioxidant containing no aliphatic ester group into a polyolefin-based resin composition of the polyolefin-based resin molded article, oxidative deterioration is remarkably reduced even when the polyolefin-based resin molded article is positioned in contact with or near the vinyl chloride-based resin molded article (See e.g., page 3, lines 8-12 and 26-28, page 8, lines 13-20, page 9, lines 9-13, page 23, lines 6-12).

Lupia appears to be completely unaware of the problem that a polyolefin-based resin molded article positioned in contact with or near a vinyl chloride-based resin molded article undergoes accelerated oxidative deterioration due to the presence of plasticizers and/or hydrogen chloride liberated from the vinyl chloride-based resin. In addition, Lupia fails to disclose or suggest the claimed combination of a polyolefin-based resin molded article that is positioned in contact with or near a vinyl chloride-based resin molded article. Moreover, Lupia fails to disclose or suggest incorporating a phenol-based antioxidant containing no aliphatic ester group and/or a sulfur-based antioxidant containing no aliphatic ester group into a polyolefin-based resin

composition of a polyolefin-based resin molded article in order to reduce oxidative deterioration thereof when the polyolefin-based resin molded article is positioned in contact with or near a vinyl chloride-based resin molded article, in accordance with the present invention.

Claims 2, 18 and 19 are each directed to a combination of a vinyl chloride-based resin molded article and a polyolefin-based resin molded article that are positioned in contact with or near to each other.

The polyolefin-based resin molded article of claim 2 is made of a polyolefin-based resin composition comprising: (A) 100 parts by mass of a polyolefin-based resin; and (B) 0.01 to 5 parts by mass of a phenol-based antioxidant containing no aliphatic ester group and/or a sulfur-based antioxidant containing no aliphatic ester group.

The polyolefin-based resin molded article of claim 18 is made of a polyolefin-based resin composition comprising: 100 parts by mass of polypropylene; 0.01 to 3 parts by mass of 1,2-bis(3,5-di-t-butyl-4-hydroxyhydrocinnamoyl)hydrazine; and 0.01 to 5 parts by mass of at least one antioxidant selected from the group consisting of: (i) 2,6-di-t-butyl-4-methyl phenol; (ii) 1,1,3-tris{2-methyl-4-[3-(3,5-di-t-butyl-4-hydroxyphenyl)propionyloxy]-5-t-butylphenyl}butane; (iii) 1,3,5-trimethyl-2,4,6-tris(3,5-di-t-butyl-4-hydroxybenzyl)benzene; (iv) tris(3,5-di-t-butyl-4-hydroxybenzyl)isocyanurate; and (v) 4,4'-butylidenebis-(3-methyl-6-t-butylphenol).

The polyolefin-based resin molded article of claim 19 is made of a polyolefin-based resin composition comprising: 100 parts by mass of polypropylene; 50 to 250 parts by mass of magnesium hydroxide; and 0.01 to 5 parts by mass of at least one antioxidant selected from the group consisting of those antioxidants recited in (i) through (v) above.

Unlike the claimed invention, Lupia describes a polyolefin wire insulation composition for stabilizing a grease filled telecommunication cable vulnerable to the adverse conditions of heat, oxygen and moisture, wherein the polyolefin wire insulation composition comprises: (A) one or more polyolefins; (B) one or more primary antioxidants selected from pentaerythritol tetrakis [3-

(3,5-di-tert-butyl-4-hydroxyphenyl)propionate] (a.k.a., Irganox® 1010), N,N'-hexane-1,6-diylbis-[3-(3,5-di-tert-butyl-4-hydroxyphenylpropionamide)] (a.k.a., Irganox® 1098), tris(3,5-di-tert-butyl-4-hydroxybenyl)isocyanurate (a.k.a., Irganox® 3114) and tris(2-(3,5-di-tert-butyl-4-hydroxyhydrocinnamoyloxy)ethyl)isocyanurate (a.k.a., Irganox® 3125); and (C) one or more metal deactivators selected from alkylhydroxyphenylalkanoyl hydrazines (e.g., 1,2-bis(3,5-di-tert-butyl-4-hydroxyhydrocinnamoyl)hydrazine, a.k.a., Irganox® MD 1024) (See e.g., abstract, page 21, Example 1, page 23, Table 1, and claims 1 and 3).

The present invention is not directed to a molded article comprising a copolymer or a blend of a poly-α-olefin and polyvinyl chloride, as described in Lupia, but rather to a polyolefin-based resin molded article that is positioned in contact with or near a vinyl chloride-based resin molded article. Therefore, while Lupia describes that component (A) may comprise a copolymer or a blend of a poly-α-olefin and polyvinyl chloride, Lupia fails to disclose or suggest the claimed combination of a polyolefin-based resin molded article that is positioned in contact with or near a vinyl chloride-based resin molded article.

Unlike the present invention, Lupia fails to disclose or suggest requiring the presence of a phenol-based antioxidant containing no aliphatic ester group and/or a sulfur-based antioxidant containing no aliphatic ester group within a polyolefin-based resin composition of a polyolefin-based resin molded article in order to reduce oxidative deterioration thereof when the polyolefin-based resin molded article is positioned in contact with or near a vinyl chloride-based resin molded article. Lupia teaches away from the claimed invention by describing that the primary antioxidant may solely consist of the pentaerythritol tetrakis [3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate] (a.k.a., Irganox® 1010) antioxidant listed in Table 1, which is a phenol-based antioxidant containing an aliphatic ester group (See e.g., page 21, Example 1). As discussed in the present specification, a phenol-based antioxidant containing an aliphatic ester group (e.g., the Irganox® 1010 antioxidant described in Lupia) and/or a sulfur-based antioxidant containing an aliphatic ester group are alone

insufficient for obtaining remarkably reduced oxidative deterioration in accordance with the present invention (See e.g., page 12, lines 26-29, page 13, line 1). Therefore, Lupia fails to anticipate or render obvious to a skilled artisan incorporating a phenol-based antioxidant containing no aliphatic ester group and/or a sulfur-based antioxidant containing no aliphatic ester group into a polyolefin-based resin composition of a polyolefin-based resin molded article in order to reduce oxidative deterioration thereof when the polyolefin-based resin molded article is positioned in contact with or near a vinyl chloride-based resin molded article.

Assuming *arguendo* that sufficient motivation and guidance is considered to have been provided by Lupia to direct a skilled artisan to arrive at the claimed invention, which is clearly not the case, such a case of obviousness is rebutted by a showing of superior properties.

As discussed in the present specification and shown by the comparative experimental data presented in Tables 1 and 2 therein, which are reproduced below for the Examiner's convenience, Applicant has discovered that by incorporating a phenol-based antioxidant containing no aliphatic ester group and/or a sulfur-based antioxidant containing no aliphatic ester group into a polyolefin-based resin composition of the polyolefin-based resin molded article, oxidative deterioration is remarkably reduced even when the polyolefin-based resin molded article is positioned in contact with or near the vinyl chloride-based resin molded article (See e.g., page 3, lines 8-12 and 26-28, page 8, lines 13-20, page 9, lines 9-13, page 17, line 21, page 19, Table 1, page 20, Table 2, page 23, lines 6-12).

TABLE 1

Natural Products
Composition and Measurement Results

		Examples				Comparative Examples	
	Component	1	2	3	4	1	2
Polyolefin	J-466HP	100	100	100	100	100	100
Phenol-based antioxidant	GSY-242	0.5	0	0	0	0	0
	Irg-1330	0	0.5	0	0	0	0
	AO-20	0	0	0.5	0	0	0
	BHT	0	0	0	0.2	0	0
	Irg-1010	0	0	0	0	0.5	0
Sulfur-based antioxidant	SUMILIZER-TPL	0	0	0	0	0	0.5
Tensile yield stress (MPa)		20	20	20	20	20	21
Tensile stress at break (MPa)		32	32	32	32	32	32
Tensile elongation at break (%)		400	420	400	410	380	410
Tensile modulus (MPa)		1140	1150	1110	1140	1130	1150
Elongation retention (at 140°) (%)	after 144 hr	71	69	66	68	37	54
	after 336 hr	49	44	50	45	4	3
	after 480 hr	10	8	7	2	—	—
	after 480 hr without vinyl chloride tape	49	52	54	55	66	63

TABLE 2

Non-Halogen Formulation Products
Composition and Measurement Results

		Examples			Comparative Examples	
	Component	5	6	7	3	4
Polyolefin	J-466HP	11	11	11	11	11
	MR110M	5	5	5	5	5
	AD89G	5	5	5	5	5
	M142E	35	35	35	35	35
Phenol-based antioxidant	GSY-242	0.5	0	0	0	0
	Irg-1330	0	0.5	0	0	0
	AO-20	0	0	0.5	0	0
	Irg-1010	0	0	0	0.4	0.4
Phosphorus-based antioxidant	Irg-168	0	0	0	0.2	0.2
Metal deactivator	MD1024	0.2	0.2	0.2	0	0
	CDA-1	0	0	0	0.3	0
	NOWGAURD XD-L	0	0	0	0	0.2
Flame retardant	Mg hydroxide	40	40	40	40	40
Silicone polymer	BY27-001	4	4	4	4	4
Tensile stress at break (MPa)		18.1	19.0	19.0	15.6	18.0
Tensile elongation at break (%)		170	200	200	210	190
Tensile modulus (MPa)		325	295	295	284	316
Elongation retention (at 140°) (%)	after 68 hr on copper	64.7	60.0	60.0	52.4	57.9
	after 221 hr on copper	64.7	55.0	55.0	10.5*	57.9
	after 384 hr on copper	51.8	55.0**	55.0**	0.0***	15.0*
	after 384 hr on aluminum with vinyl chloride tape	55.9	50.0	50.0	14.0	25.0
	after 384 hr on aluminum without vinyl chloride tape	53.5	50.0	50.0	48.0	52.6

Note:
*Somewhat discolored;
**Slightly discolored;
***Worn out

Specifically, the polyolefin-based resin molded articles of Examples 1-7, which comprise a phenol-based antioxidant containing no aliphatic ester group and/or a sulfur-based antioxidant

containing no aliphatic ester group in accordance with the present invention, exhibited remarkably reduced oxidative deterioration as evidenced by elongation retention, as compared to the rapid oxidative deterioration exhibited by the conventional polyolefin-based resin molded articles of Comparative Examples 1-4, which comprise a phenol-based antioxidant containing an aliphatic ester group, such as the Irganox® 1010 antioxidant described in Lupia, and/or a sulfur-based antioxidant containing an aliphatic ester group (See e.g., page 19, Table 1, page 20, Table 2, page 22, lines 17-29, page 23, lines 1-12).

This evidence clearly demonstrates that polyolefin-based resin molded articles, which comprise a phenol-based antioxidant containing no aliphatic ester group and/or a sulfur-based antioxidant containing no aliphatic ester group, in accordance with the present invention, exhibit remarkably reduced oxidative deterioration even when the polyolefin-based resin molded articles are positioned in contact with or near a vinyl chloride-based resin molded article, as compared to the rapid oxidative deterioration exhibited by conventional polyolefin-based resin molded articles, which comprise a phenol-based antioxidant containing an aliphatic ester group, such as the Irganox® 1010 antioxidant described in Lupia, and/or a sulfur-based antioxidant containing an aliphatic ester group.

Withdrawal of these grounds of rejection is respectfully requested.

In conclusion, Applicants submit that the present application is now in condition for allowance and notification to this effect is earnestly solicited.

Respectfully submitted,

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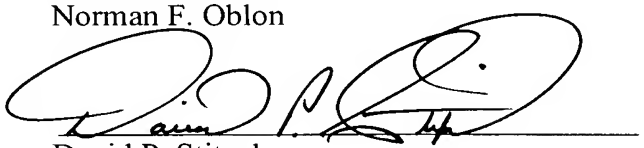

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